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| 09/593,424 | 06/14/2000 | Katsuya Irie | 1081.1091/JDH | 8248 |

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| EXAMINER |
|---|
| LEWIS, DAVID LEE |

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|---|---|
| 2673 | |

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | Application No. | Applicant(s) |
|---|---|---|
| **Office Action Summary** | 09/593,424 | IRIE ET AL. |
| | Examiner | Art Unit | |
| | David L. Lewis | 2673 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on <u>*18 July 2005*</u>.

2a)☒ This action is **FINAL**.    2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1.      **Claims 1-3, 6, and 7 are rejected under 35 U.S.C.102(e) as being anticipated by Kang. (6400347).**

**As in claims 1, Kang teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, **column 1 lines 39-45**,

comprising: a drive unit, **figure 4 item 20**, which monitors a display load factor, receives image signals of said different colors and drives pixels of each colors in the panel according to intensities of the image signals so as to have the pixels emit light with emission intensities corresponding to the intensities of the image signals, **column 4 lines 40-60**,

while controlling to decrease a drive frequency of the sustain discharge as the display load factor increases, **column 4 lines 40-60**,

said drive frequency of sustain discharges being in common to said pixels for different colors, **column 2 lines 45-60, figure 4 item S1-S480**

wherein said drive unit makes correction to change the intensity of one of the image signal of a predetermined color, independently of another color, depending on a change of the monitored display load factor, **column 4 lines 40-60, column 6 lines 25-30**, wherein each color is monitored separately

and drives all of the pixels in the panel according to the corrected intensity of the one image signal, **column 6 lines 25-30**,

so that the ratio of the emission intensity of said fluorescent substance of each color during white display is, roughly the same when said display load factor is low and high, **column 4 lines 40-60, column 8 lines 5-10**.

Wherein the drive frequency of the sustain pulses is decreased based on a brightness (load factor) so that the color signal ratio is optimized for good white balance. The detecting means (column 6 lines 1-5) measures the brightness of each color signals R, G, B, and calculates the number of sustain pulses required to maintain good white balance (white display that is roughly the same given low or high brightness), and then proceeding to drive the display accordingly. **Load factor is interpreted as** the number of activated pixels of the R, B, G color signals and is directly related to power consumption and brightness. Brightness is the value of lightness from white to black and determines whether a pixel is activated, and therefore in this context it determines the load factor. If the Red pixel is black, and the Blue and Green pixels are white, the brightness has a specific load factor value. If all colored pixels are off or on, the load factor has values corresponding to these brightness values. Further measuring brightness and monitoring brightness are considered equivalent within the context of the claimed invention. Therefore measuring brightness is equivalent to monitoring load factor, wherein brightness has a direct determination on load factor.

**Further, as found in claim 2 and 3, Kang teaches** wherein the signal of green/blue is increased/decreased, compared with the varying load factor, Kang teaches adjusting for good white balance, **column 4 lines 40-50,**

wherein said condition is accounted for to achieve good white balance. Wherein the drive frequency is decreased based on a brightness detecting means as independently corrected for each of R, G, B, colors, said brightness detecting means having a direct correspondence to load factor, the adjustments to the R, G, B color intensity each being independently increased or decreased according to load factor.

**As in claim 6, Kang teaches** of a plasma display r panel according to wherein said drive unit monitors a luminance value and/or display area value  as the display load factor of each color to be supplied per predetermined unit time, **column 6 lines 110,**

and corrects said emission intensity of green or blue on the condition that said display load factor increases when the accumulated total of said luminance value and/or display area value per predetermined unit time is higher, column 6 lines 20-33, and said display load factor decreases when the accumulated total of said luminance value and/or display area value per predetermined unit time is lower, **column 4 lines 40-60, column 7 lines 63-67, column 8 lines 1-21.**

Wherein the brightness detecting means monitors the brightness of each color signal, R, G, and B whereby the color coordinates are measured every sub-field, and depending on the load factor or digital bit weight of the picture data, adjusts the R, G, B, color levels independently, to achieve superior display performance.

**As in claim 7, Kang teaches of** a plasma display panel which display colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharge, **column 1 lines 39-45,**

comprising: a driver which monitors a display load factor, which depends on a luminance and/or display area of a display image, repeats a sustain discharge according to a drive frequency, **figure 4 item 20, column 4 lines 40-60**

said drive frequency of sustain discharges being in common to said pixels for different colors, **column 4 lines 40-60**,

and drives pixels of the colors in the panel during a sustain discharge period which corresponds to intensities of input image signals of the colors, **column 4 lines 40-60**,

wherein said driver limits a range of the drive frequency within a range in which emitting intensity of the fluorescent substances does not reach to a saturation range, so that a chromaticity coordinate value during a white display is roughly constant regardless of the monitored display load factor which depends on a luminance and/or a display area of a display image, **column 1 lines 39-45, column 4 lines 40-60**.  wherein said saturation feature is inherent to a properly functioning plasma display as is known in the art.

Wherein the color coordinate of Kang is equivalent to the applicants chromaticity coordinate and said drive frequency is determined by the calculating the number of the sustain pulses of the color signal ratio required in good white balance, repeating according to the number of pulses.

2.      **Claims 1-3, 11, and 12 are rejected under 35 U.S.C.102(e) as being anticipated by Kasahara et al. (6331843).**

**As in claims 1-3, Kasahara et al. teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, **column 1 lines 5-10, column 20 lines 17-67** (color PDP),

comprising: a drive unit, **figure 15-17**, which receives image signals of said different colors and drives pixels of each colors in the panel according to intensities of the image signals so as to have the pixels emit light with emission intensities corresponding to the intensities of the image signals, **figure 15 item 2,**

while decreasing the drive frequency of the sustain discharge as the display load factor increases, **column 3 lines 36-42; column 4 lines 30-41, column 23 lines 24-45,**

said drive frequency of sustain discharges being in common to said pixels for different colors, **figure 15 item 22**, as known in the art.

wherein said drive unit makes correction to change the intensity of one of the image signal of a predetermined color, independently of another color, **column 20 lines 54-67, column 23 lines 54-67, column 24 lines 7-14**

and drives all of the pixels in the panel according to the corrected intensity of the one image signal, **column 24 lines 1-5,**

so that the ratio of the emission intensity of said fluorescent substance of each color during white display is roughly the same when said display load factor is low and high depending on a change of the display load factor, **column 27 lines 5-15**.

Wherein the weighting multiplier N is adjusted according to brightness, said brightness being an equivalent measure of display load, said optimum image in accordance with brightness and having no contour noise is equivalent to having good white balance. Said weighting multiplier N being set by a pulse width setting means which sets the drive pulse number directly affecting sustaining frequency in accordance with brightness. As the average level of said brightness or load increases, the frequency is decreased by adjusting N.

**As in claims 11 and 12, Kasahara teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultraviolet rays generated during discharges, **column 1 lines 5-10, column 20 liens 17-67~** (color PDP),

comprising:; and a drive unit, which receives image signals of said different colors, **figure 15-17**,

drives pixels of each of the colors in the plasma display panel according to intensities of the image signals so as to have the pixels emit light with emission intensities corresponding to the intensities of the image signals and changes the drive frequency of sustain discharges according to the estimated display load factor, **column 3 lines 36-42, column 4 lines 30-41, column 23 lines 24-45**,

and changing an intensity of one of the image signals of a predetermined color, **column 20 lines 51-67, column 21 lines 1-19**,

and driving all of the pixels in the panel according to the corrected intensity of the one image signal, so that a ratio of the emission intensity of each of the different colors during white display is substantially equal regardless of the display load factor, wherein the load factor changes, **column 27 lines 5-15**,

said detector to estimate a display load factor by detecting one of a power consumption of the plasma display panel and a drive frequency of sustain discharges of the plasma display panel, **figure 16 item 54**.

Wherein the weighting multiplier N is adjusted according to brightness, said brightness being an equivalent measure of display load, said optimum image in accordance with brightness and having no contour noise is equivalent to having good white balance.

Said weighting multiplier N being set by a pulse width setting means which sets the drive pulse number directly affecting sustaining frequency in accordance with brightness. As the average level of said brightness or load increases, the frequency is decreased by adjusting N.

## *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3.      **Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang (6400347 131) in view of Kasahara et al. (6331843).**

**As in claims 11 and 12, Kang teaches of** a plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultraviolet rays generated during discharges, **column 1 lines 39-45,**

comprising:; and a drive unit, which receives image signals of said different colors, **figure 4 item 20,**

drives pixels of each of the colors in the plasma display panel according to intensities of the image signals so as to have the pixels emit light with emission intensities corresponding to the intensities of the image signals and changes the drive frequency of sustain discharges according to the estimated display load factor, **column 4 lines 40-59,**

and changing an intensity of one of the image signals of a predetermined color, and driving all of the pixels in the panel according to the corrected intensity of the one image signal, so that a ratio of the emission intensity of each of the different colors during white display is substantially equal regardless of the display load factor, column 4 lines 4060, column 8 lines 5-10, wherein the load factor changes, **column 2 lines 12-41**.

**However Kang does not explicitly teach of** said detector to estimate a display load factor by detecting one of a power consumption of the plasma display panel and a drive frequency of sustain discharges of the plasma display panel. **Kasahara et al. teaches of** said detector to estimate a display load factor by detecting one of a power consumption of the plasma display panel and a drive frequency of sustain discharges of the plasma display panel, **column 4 lines 4-7, column 21 lines 1-19, column 26 lines 34-60, figure 16 items 26, 28, 36, and 54**. Wherein item 36 detects power consumption and item 36 detects frequency. Both Kang and Kasahara et al. teach of plasma display system wherein the scanning sustaining input is adjusted according to display brightness. Kang implies a detecting means but does not illustrate it structurally. Kasahara provides what Kang is silent on, the motivation to combine being the fact that they teach of like systems achieving a like objective, color balance. **Therefore it would have been obvious** to the skilled artisan at the time of the invention to combine the detecting means of Kasahara with the adjusting means of Kasahara et al. because Kasahara teaches what Kang implies but fails to distinguish to achieve the same goal of adjusting the scanning sustain pulse to effect good display balance.

**4.     Claims 8-10, 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang (6400347 B1).**

**As in claims 8 and 9, Kang teaches of** the plasma display as applied above to claim 7. **However Kang is silent as to said** language where said color temperature value or blackbody radiation is considered. Given the fact that Kang teaches of color coordinates which are equivalent to said chromaticity coordinates, said teaching obviously implies a

chromaticity diagram indicating a variation of color temperature of an energy emitting black body radiation, because chromaticity coordinates, color temperature, and black body radiation are all interrelated within the concept of achieving good white balance in a color display system, and are all contained with a chromaticity diagram representation of the color coordinates, required for an appropriate white balance ratio calculation. Therefore said color temperature value and blackbody radiation features of claims 8 and 9 would have been obvious to the skilled artisan at the time of the invention because Kang teaches of measuring the brightness and color coordinates and calculating the number of sustain pulses of the color signal ratio required in good white balance. **Further, as in claim 10**, said +/- 0.005uv value would have been an obvious design choice in view of the general teaching of color coordinates being used for a calculation, said calculation obviously being based on the chromaticity diagram required for the display system to achieve good white balance, because Kang particularly teaches of minute white balance, **column 4 lines 20-25**.

**As in claims 13 and 14, Kang is** silent as to said distinction of said respective levels, however Kang implicitly teaches of said distinction wherein as the display load factor increases from first to a second level, the red, blue, and green colors signals are adjusted to obtain good white color balance, column 4 lines 40-60, column 6 lines 1-6.

5.      **Claims 4, 5, and 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang (6400347) in view of Kasahara et al. (6331843) and Nagai (200210044105).**

**As in claims 4, 15 and 16, Kang is silent on** teaching of detecting power consumption and adjusting the green or blue color based on a load factor and power consumption change. Nagai advances on the invention taught by Kang and teaches of adjusting the color sustaining pluses based on power consumption, drive frequency or color temperature, **page 6 paragraph 78, page 9 paragraph 125, page 10 paragraphs 136,**

**141, 142**. Wherein Nagai identifies the signal with a circuit 4 or 19, determining signal type, and adjusts the drive sequence based on this information.

**As in claims 5, 17 and 18, Nagai detects** the drive frequency of the sustain discharges of the plasma display panel and adjusts the emission intensity, page 6 paragraph 79, wherein the identification circuit reads the signal period information and adjusts the display accordingly.

**As in claims 19 and 20, Nagai detects** a luminance value and/or a display area value of each color to be supplied per predetermined unit time, and adjusts the emission intensity, page 6 paragraph 79, wherein adjustment is made based on the counted number of horizontal sync signals.

### *Response to Arguments*

6.    Applicant's arguments with respect to claims filed on 7/18/2005 have been considered but are not persuasive. See Kang in view of Kasahara and Nagai rejection above. In each the number of sustaining pulses is varied according to brightness. Load factor is interpreted as the number of activated pixels of the R, B, G color signals and is directly related to power consumption and brightness.   Brightness is the value of lightness from white to black and determines whether a pixel is activated, and therefore in this context it determines the load factor.  If the Red pixel is black, and the Blue and Green pixels are white, the brightness has a specific load factor value.  If all colored pixels are off or on, the load factor has values corresponding to these brightness values. Further measuring brightness and monitoring brightness are considered equivalent within the context of the claimed invention. Therefore measuring brightness is equivalent to monitoring load factor, wherein brightness has a direct determination on load factor. Rejection maintained.

### *Conclusion*

7.      Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.   Accordingly, **THIS ACTION IS MADE FINAL**.   See MPEP § 706.07(a).  Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).  A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action.  In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action.  In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8.      Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is **(571) 272-7673**.  The examiner can normally be reached on MT and THF from 8 to 5.  If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on **(571) 272-7681**.  Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571)-273-8300.

9.      Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system.   Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

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Examiner: David L. Lewis

November 23, 2005

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